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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF APPEALS AND INTERFERENCES

In re Patent Application of

New York, New York

Toshiyuki TOYOFUKU, et al.

Date: March 19, 2003

Serial No.: 09/096,395

Group Art Unit: 2612

Filed: June 11, 1998

Examiner: J.M. Villecco

For: DIGITAL CAMERA HAVING A FEATURE FOR WARNING
A USER OF INSUFFICIENT MEMORY (As Amended)

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Asst. Commissioner of Patents and Trademarks
Washington, D.C. 20231

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APPEAL BRIEF UNDER 37 C.F.R. §1.192

Technology Center 2600

Sir:

This appeal is from the Examiner's final rejection of
this application.

Real Party in Interest

The real party in interest is the assignee, Olympus
Optical Co., Ltd.

2/21/03
SD

Related Appeals and Interferences

The applicants, the assignee and the undersigned
attorneys are not aware of any related appeals and interferences.

Status of Claims

Claims 13-18, 20 and 22-28 are pending and on appeal
herein.

Claims 1-11, 12, 19 and 21 have previously been
canceled.

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Status of Amendments

All amendments have been entered, the last amendment being a response entered subsequent to final rejection, dated December 9, 2002.

Summary of Invention

The invention generally concerns a digital camera that has a panoramic mode. In the panoramic mode, the camera is able to take a series of shots or images and thereafter combine them or compose them into a single panoramic picture.

Conventional digital cameras store finished pictures on a removable memory card. Conventional cameras count "images" and when there is not enough film or space in the removable memory card, they issue a warning that there is not enough memory or film to take the next picture.

The instant inventors identified a problem unique to a panoramic camera. In the panoramic mode, the number of images or shots needed to compose the panoramic picture is either a predetermined number or a number that is settable by the user. The prior art panoramic mode cameras provide no warning or alert that a panoramic series of shots might not be completed because of the lack of sufficient space on the removable memory to store the entire series.

In the instant invention, the camera controls or calculates in the panoramic mode, how many image spaces must be left in the memory card to permit completion of the next panoramic mode photographing session. If there is insufficient space, a special warning is issued.

Issues

1. Is claim 14 obvious over Fujimori (5,027,214), in view of Okauchi (5,907,353)?
2. Are claim 15-17 and 25-28 obvious over Fujimori '214 in view of Moghadam (5,682,197)?

3. Is claim 18 obvious over Fujimori '214 in view of Moghadam '197. further in view of Udagawa (6,195,125)?

4. Is claims 20 obvious over Moghadam '197 in view of Udagawa '125?

5. Is claim 22 obvious over Moghadam '197 in view of Udagawa '125, further in view of Fujimori'214?

6. Are claims 13 and 23-24 obvious over Moghadam '197 in view of Udagawa '125, further in view of Fujimori '214 and Okauchi '353?

Grouping of Claims

The claims do not stand or fall together. Rather, there are four claim groups, the patentability of each group being subject to independent and separate consideration. These groups are: I. Claims 14, 15-17; II. Claims 18, 20; III. Claims 22-24 and 13; and IV. Claims 25-28.

Argument

The gist of the argument is that the prior art of record is devoid of any teaching, suggestion or hint of the expedient of providing a camera user or operator a "warning" that she/he cannot take another panoramic picture, where the term "panoramic" refers to a picture that is itself composed of a plurality of pictures, i.e., images.

Numerous prior art cameras indicate to the camera operator how many pictures are left to be taken or how many pictures have been taken. But none of the prior art of record generates a warning that is based on the number of frames or images that are pre-assigned to a composite panoramic picture, when the user is about to take another panoramic picture and there is not enough space on the memory card to take as many pictures as it takes to create a panoramic, composite picture.

Claims 14, 15, 18, 20, 22, 25 and 27 are independent. Claims 14 and 15-17 of the first group recite a digital camera

with a panoramic mode with either a "comparison means" (claim 14) or a calculation element (claim 15) which determines whether or not there is sufficient unexposed capacity on the recording medium to take and store another series of images as required for the panoramic mode. A "warning means" or "warning generator" generates a warning when there is insufficient space to take the entire set of images required to complete the panoramic picture. The user does not have to consult a display to note how many picture frames were already utilized, or how many frames are left. He or she does not have to know how many images are allocated to a panoramic picture or mentally calculate if there is sufficient memory to take another panoramic picture.

Independent claims 18 and 20 of the second group of claims which stand together, similarly concern a digital camera with a panoramic mode, but which solves the aforementioned problem differently. These claims include a "control element" which is cognizant of the fact that it will be impossible to complete the next series of images for a panoramic picture and, therefore, stores information relating to photographing conditions of the images which are going to be stored on the first detachable recording medium for later use when the second recording medium is installed. This is done in a manner which allows those images stored on two different recording mediums to be compiled into a single, coherent panoramic picture. This unique operation occurs "when a capacity of the first recording medium is insufficient to record all of images of the set of panoramic image frames" (claim 18, lines 10-11 and claim 20, lines 10-11).

The third group, i.e., claims 22-24 and 13, stand together and separately from the other groups, in that they combine the limitation of both group one and two as an overall electronic photographing device that includes the control element that allows photographing a portion of the images of a panoramic picture according to stored photographing conditions for a first set of frames of the overall panoramic images and for also

including the feature of a "calculating element" that calculates the remaining number of panoramic image frames so as to allow it to trigger a "warning generator" to generate a warning when it will be necessary to go to a second memory card to finish the photographing session.

Lastly, the claims of group four (claims 25-28) are directed to a panoramic photographing apparatus that records "image information" relating to a plurality of associated panoramic image frames onto a first recording medium and records a second "image information" which corresponds to a subsequent panoramic image frame onto a second recording medium when the capacity of the first recording medium is insufficient to store the entire set of panoramic image frames. Furthermore, the apparatus includes at least one piece of identification information that represents and identifies the overall set of panoramic images.

As set forth in the final rejection dated October 1, 2002, the Examiner has relied on the following combinations of the prior art of record:

Fujimori '214/Okauchi '353 for claim 14;
Fujimori '214/Moghadam '197 for claims 15-17 and 25-28;
Fujimori '214/Moghadam '197/Udagawa '125 for claim 18;
Moghadam '197/Udagawa '125 for claim 20;
Moghadam '197/Udagawa '125/Fujimori '214 for claim 22;
Moghadam '197/Udagawa '125/Fujimori '214/Okauchi '353

for claims 13 and 23-24.

Fujimori describes a conventional digital camera with no panoramic capabilities. This is admitted in the Final Rejection. See page 9, line 1. Fujimori discloses no more than the conventional, admitted prior art, which conventional art has been acknowledged by the applicant to disclose that the camera knows when it has insufficient memory (or film) to take another single image. But as further acknowledged in the Office Action, Fujimori, not being a panoramic camera, does not concern itself

with and has no disclosure regarding correlating a number of images with one another, as would be required for a panoramic camera. This prior art is devoid of any disclosure of issuing any warning or taking any action whatsoever at the point where the camera does not have sufficient memory to record a given number of pictures that corresponds to a set of panoramic pictures.

Conventional panoramic cameras obviously relate a set of images to one another. It is also conventional in the camera art to count, either the number of images already taken, or the number of images remaining. Okauchi '353 is concerned with a unique camera that takes a larger sized image and deliberately subdivides it into predefined portions to increase the overall image resolution. But Okauchi does not describe issuing any warning to a user, let alone a warning that is dependent upon there being insufficient memory to take a given number of images to take or to store a given number of images that is dependent on the number into which a single image is divided. This is therefore the reason why the Examiner reverts at page 3 of the Office Action (middle paragraph), to arguing that the warning feature of the invention is derived from Fujimori and bases the rejection purely on a logical argument. That is:

"Fujimori does, on the other hand, disclose generating a warning when there is not enough memory to take another image. Therefore it would have been obvious to combine the teachings of Okauchi and Fujimori to generate a warning based on the comparison of predicted frames of Okauchi to the number of remaining frames in Fujimori, so that the user is informed whether or not there is sufficient memory to complete a photographing operation."

In fact, it was not necessary for the Examiner to resort to the cited prior art to make that argument. The

applicant all along acknowledged the existence of panoramic cameras and has acknowledged the fact that cameras have image counters that indicate how many pictures were taken or how many pictures can still be taken. Where the prior art falls short, is in failing to teach or suggest to count and issue warnings on the basis of groups of images. Fujimori, in combination with Okauchi, adds nothing to the teachings which are missing in the prior art. It is only through the logical reasoning of the Examiner, which is hindsight-based, that he arrives at the present invention in the manner set forth in the Office Action.

In other words, even if one incorporates the Okauchi teachings into Fujimori, and further modified Fujimori into a panoramic camera (neither of these references describes a panoramic camera) the combination would still not lead one of ordinary skill in the art to a camera that issues a warning when there is insufficient memory to take a given number of images. Fujimori only teaches to issue such a warning when there is insufficient memory to take a single image. The only source or inspiration for that teaching is the present application and that is impermissible under the relevant patent examination criteria.

Therefore, the Examiner has not presented a prima facie case of obviousness relative to claim 14.

Relative to claims 15-17 and 25-28, the Examiner has combined Fujimori with Moghadam. Moghadam describes no more than the conventional panoramic camera described previously. All of the foregoing remarks are applicable. The combination of Moghadam with Fujimori as a primary reference still does not lead one to issue a warning that another panoramic picture cannot be taken. Moghadam does not contain such a disclosure. Therefore, the group one claims (14 and 15-17) are patentable over the prior art.

In combining the teachings of Fujimori, Moghadam and Udagawa relative to claim 18, the Examiner is relying on the teaching of Udagawa (column 13, line 60 to column 14, line 26) for the proposition that there are certain advantages to using

the same photographing conditions for a series of images. However, Udagawa is totally inapplicable to the instant invention, because it relates to the taking of an image of the same scene repeatedly, in order to increase the resolution of the final output. Udagawa does not describe a panoramic camera and does not provide the teachings missing in the Fujimori, Okauchi and Moghadam references, as discussed above.

The four references discussed above (Fujimori, Okauchi, Moghadam and Udagawa) are used in the Office Action to reject claims 20, 22, 13 and 23-24. Their combined teachings, however, do not produce the invention in the first group of claims, 14 and 15-17.

The claims of group 2 (18 and 20) describe the teaching of the invention that a composite picture can be taken and stored on two separate memory cards with the camera being cognizant that only a portion of a panoramic scene has been completed and stored on one memory card, with the remaining portion being stored on a second memory card, with identifying information correlating the two memory card data to one another. The prior art of record is devoid of any such teaching. Therefore, claims 18 and 20 are clearly patentable over the prior art.

The claims of the third group (22-24 and 13) constitute a combination of the inventive concept of the first group and the second group. By logic, therefore, the prior art cannot be said to either teach or suggest the combined invention.

Lastly, the group four claims (25-28) are directed to an inventive concept that is somewhat similar to those of the claims in the second group and that concept is nowhere disclosed in the prior art of record, as noted above. Therefore, it is respectfully submitted that all of the claims in the application are neither taught, nor suggested in the prior art of record.

Conclusion

Based on the foregoing, the Examiner's rejection based on the reasoning and application of the prior art of record,

should be reversed with respect to each of the four different claim groups. Each of these identified claim groups is patentable over the prior art and merits the allowance thereof.

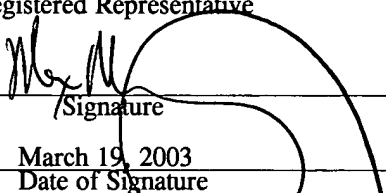
Our check No. 15408, which includes the amount of \$320.00 to cover the appeal brief is attached hereto. This brief is being submitted in triplicate in accordance with 37 CFR 1.192 and applicant reserves the right to request an oral hearing upon receipt of the Examiner's Answer.

If this communication is filed after a shortened statutory time period has elapsed and no separate Petition is enclosed, the Commissioner of Patents and Trademarks is petitioned, under 37 C.F.R. §1.136(a), to extend the time for filing a response to the outstanding Office Action by the number of months which will avoid abandonment under 37 C.F.R. §1.135. The fee under 37 C.F.R. §1.17 should be charged to our Deposit Account No. 15-0700.

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Asst. Commissioner of Patents and Trademarks, Washington, D.C. 20231, on March 19, 2003

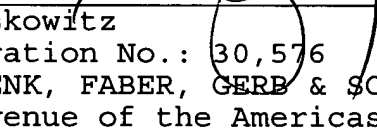
Respectfully submitted,

Max Moskowitz

Name of applicant, assignee or
Registered Representative


Signature

March 19, 2003
Date of Signature



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APPENDIX

The Claims on Appeal Are:

13. An electronic photographing device according to claim 23, wherein the identification information is one of a file name shared by all of the images in the set of panoramic image frames or a panorama number representing a photographing order of the panoramic image frames in the set of panoramic image frames.

14. An electronic photographing device, comprising:
a digital camera having a panoramic mode in which a panoramic image can be recorded, wherein the panoramic image includes a number of associated panoramic image frames that together form the panoramic image;

a detachable recording medium for recording image information corresponding to each panoramic image frame in a panoramic image;

predicted number setting means for allowing a user to preset a number of panoramic image frames for forming a panoramic image;

available recording medium determining means for determining a number of panoramic image frames which can be recorded on the detachable recording medium based on an unexposed capacity of the recording medium;

comparison means for comparing the number of panoramic image frames which can be recorded as determined by the available recording medium determining means with the number of panoramic image frames preset by the predicted number setting means; and

warning means for generating a warning that a spare recording medium is required to complete recording the number of panoramic image frames, if as a result of comparison by the

comparison means, the number of panoramic image frames which can be recorded as determined by the available recording medium determining means is smaller than the number of panoramic image frames preset by the predicted number setting means.

15. An electronic photographing device, comprising:
a digital camera having a panoramic mode in which a panoramic image can be recorded, wherein the panoramic image includes a number of associated panoramic image frames that together form the panoramic image, the digital camera being usable in combination with a detachable recording medium for recording image information corresponding to each panoramic image frame in a panoramic image, the digital camera further including:
a calculation element for calculating a remaining number of panoramic image frames which can be recorded on the recording medium based on an entire capacity of the recording medium and a capacity which has previously been used to obtain a remaining capacity of said recording medium; and
a warning generator for generating a warning when the remaining number of panoramic image frames which can be recorded is not more than a predetermined value.

16. An electronic photographing device according to claim 15, wherein the predetermined value is zero.

17. An electronic photographing device according to claim 16, wherein the warning indicates that a spare recording medium must be inserted when the remaining number of panoramic image frames which can be recorded is zero.

18. An electronic photographing device, comprising:
a digital camera having a panoramic mode in which a panoramic image can be recorded, wherein the panoramic image

includes a number of associated panoramic image frames that together form the panoramic image, the digital camera being usable in combination with:

a first detachable recording medium for recording image information corresponding to a first panoramic image frame of a set of panoramic image frames photographed in the panoramic mode, and

a second detachable recording medium for recording image information corresponding to a subsequent panoramic image frame in the set of panoramic image frames photographed in the panoramic mode when a capacity of the first recording medium is insufficient to record all of the images of the set of panoramic image frames, the digital camera including:

a photographing information storage element for storing information relating to photographing conditions of the first panoramic image frame of the set of panoramic image frames; and

a control element for photographing the subsequent panoramic image frame according to the stored information relating to photographing conditions of the first photographed panoramic image; wherein the photographing conditions include at least one of exposure information, AF information and white balance information.

20. An electronic photographing device, comprising:
a panoramic photographing apparatus which records panoramic images each composed of a plurality of associated panoramic image frames and image information corresponding to at least a first panoramic image frame of a set of panoramic image frames photographed by panoramic photographing onto a recording medium, and which records image information corresponding to a

subsequent panoramic image frame of the set onto the recording medium; wherein the panoramic photographing apparatus includes:

a photographing information storage element for storing photographing conditions of the first panoramic image frame of the set of panoramic image frames; and

a control element for photographing the subsequent panoramic image frame according to the stored photographing conditions of the first panoramic image frame;

wherein the photographing conditions include at least one of photometric information, white balance information, a focusing setting, exposure information, and a rotation direction.

22. An electronic photographing device, comprising:

a panoramic photographing apparatus which records panoramic images each composed of a plurality of associated panoramic image frames and image information corresponding to at least a first panoramic image frame of a set of panoramic image frames photographed by panoramic photographing onto a recording medium, and which records image information corresponding to a subsequent panoramic image frame of the set onto the recording medium; wherein the panoramic photographing apparatus includes:

a photographing information storage element for storing photographing conditions of the first panoramic image frame of the set of panoramic image frames; and

a control element for photographing the subsequent panoramic image frame according to the stored photographing conditions of the first panoramic image frame;

wherein the photographing conditions include at least one of photometric information, white balance information, a focusing setting, exposure information, and a rotation direction,

wherein the panoramic photographing apparatus further comprises:

a calculation element for calculating a remaining number of panoramic image frames which can be recorded on the recording medium based on an entire capacity of said recording medium and a capacity which has been used to obtain a remaining capacity of said recording medium; and

a warning generator for generating a warning when the remaining number of panoramic image frames which can be recorded on the recording medium is less than a predetermined number.

23. An electronic photographing device according to claim 22, wherein the panoramic photographing apparatus further comprises:

a predicted number setting element for setting a predicted number of panoramic image frames to be photographed for a panoramic image; and

a comparing element for determining whether the recording medium is sufficient to photograph all of the predicted panoramic image frames by comparing the predicted number with the remaining number calculated by the calculation element,

wherein the predetermined number is the predicted number and the warning indicates that a second recording medium is required to finish photographing all of the panoramic image frames of the panoramic image.

24. An electronic photographing device according to claim 23, wherein the panoramic photographing apparatus further includes means for checking whether a second recording medium has replaced the first recording medium prior to photographing a subsequent image according to the stored photographing conditions of the first panoramic image frame.

25. An electronic photographing device comprising:

a panoramic photographing apparatus which records panoramic images each composed of a plurality of associated panoramic image frames and image information corresponding to at least a first panoramic image frame of a set of panoramic image frames photographed by panoramic photographing onto a first recording medium, and which records image information corresponding to a subsequent panoramic image frame of the set onto a second recording medium when the capacity of the first recording medium is insufficient to record the entire set of panoramic image frames, the first and second recording mediums being interchangeably attachable to the panoramic photographing apparatus; wherein the image information recorded on the first recording medium and the image information recorded on the second recording medium will include at least one piece of identification information representing the set of panoramic images.

26. An electronic photographing device according to claim 25, wherein the identification information is one of a file name shared by all of the panoramic image frames of the set of panoramic image frames or a panorama number representing a photographing order in the set of panoramic image frames.

27. An apparatus for recording panoramic images each panoramic image being composed of a plurality of associated panoramic image frames, comprising:

a first recording medium having recorded thereon image information corresponding to at least a first panoramic image frame of a panoramic image; and

a second recording medium having recorded thereon image information corresponding to a subsequent panoramic image frame of the panoramic image when a capacity of the first recording

medium is insufficient to record all of the panoramic image frames in the panoramic image;

wherein the image information recorded on the first recording medium and the image information recorded on the second recording medium will include at least one piece of identification information representing the panoramic image.

28. An electronic photographing device according to claim 27, wherein the identification information is one of a file name shared by all of the panoramic image frames of the panoramic image or a panorama number representing a photographing order of the panoramic image frames in the set of panoramic image frames.